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CONDITION SURVEY, LAGUNA ARMY AIRFIELD, YUMA PROVING GROUND, AR--ETC(U)
JUN 73 P J VEDROS, R D JACKSON, S J ALFORD

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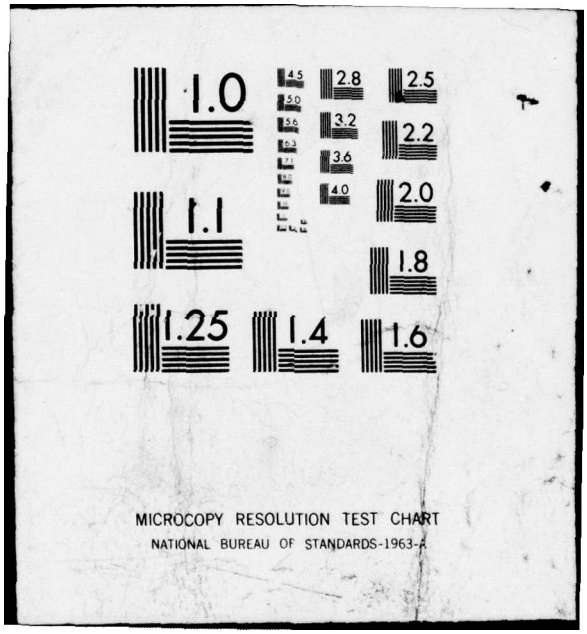
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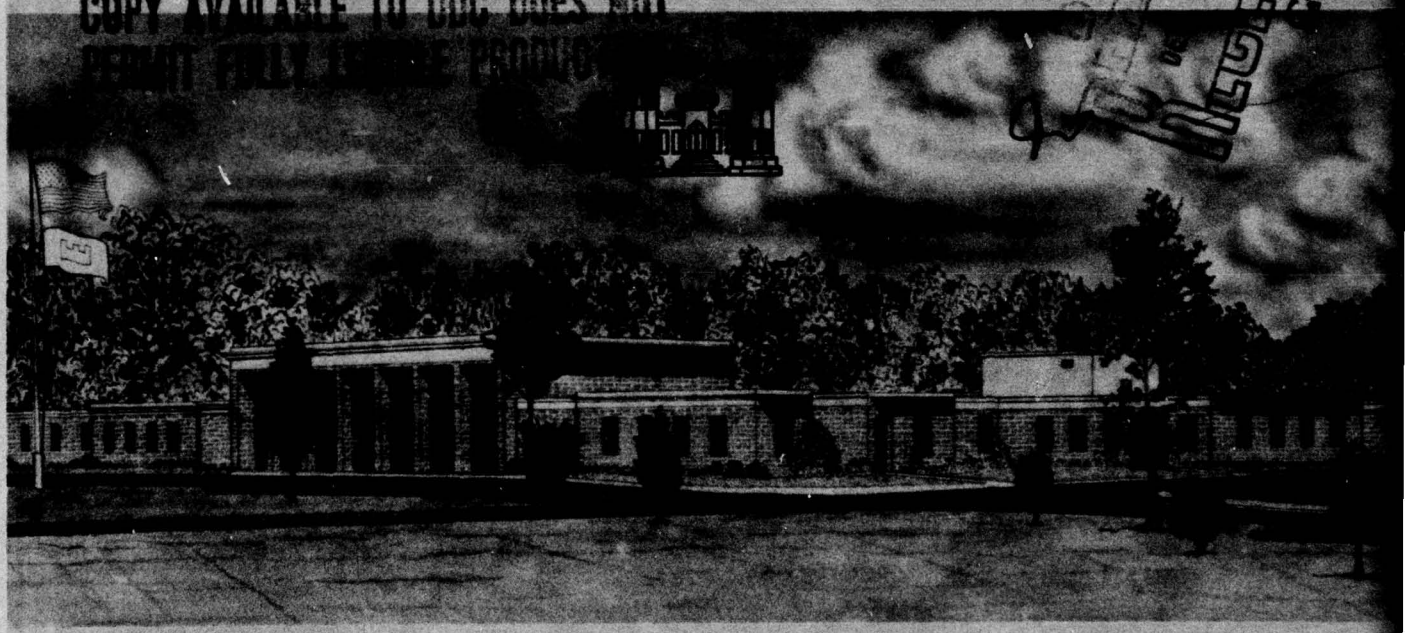
MISCELLANEOUS PAPER S-73-50

CONDITION SURVEY, LAGUNA ARMY AIRFIELD YUMA PROVING GROUND, ARIZONA

by

P. J. Vedros, R. D. Jackson, S. J. Alford



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(9) MISCELLANEOUS PAPER S-73-50

(6) CONDITION SURVEY, LAGUNA ARMY AIRFIELD, YUMA PROVING GROUND, ARIZONA.

by

(10) P. J. Nedros, R. D. Jackson, S. J. Alford

(14) WES-MP-S-73-50

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(11) June 1973

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Vicksburg, Mississippi

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Foreword

Authority for conducting condition surveys at selected airfields is contained in Long-Range Program, O&M,A, FY 1972, Project Q6-1: "Engineering Criteria for Design and Construction - WES," dated 1 July 1971.

The facilities at Laguna Army Airfield, Yuma Proving Ground, Arizona, were inspected during December 1972 by Messrs. R. D. Jackson, K. A. O'Connor, and S. R. Rowland, Jr., of the Engineering Design Criteria Branch, Soils and Pavements Laboratory, U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi. This report was prepared by Messrs P. J. Vedros, R. D. Jackson, and S. J. Alford under the general supervision of Messrs. J. P. Sale, R. G. Ahlvin, and R. L. Hutchinson of the Soils and Pavements Laboratory, WES.

COL Ernest D. Peixotto, CE, was Director of the WES during the conduct of the study and preparation of this report. Mr. F. R. Brown was Technical Director.

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Conversion Factors, British to Metric Units of Measurement

British units of measurement used in this report can be converted to metric units as follows:

Multiply	By	To Obtain
inches	2.54	centimeters
feet	0.3048	meters
miles (U. S. statute)	1.609344	kilometers
square inches	6.4516	square centimeters
pounds (mass)	0.45359237	kilograms
pounds (force) per square inch	0.6894757	newtons per square centimeter
Fahrenheit degrees	*	Celsius or Kelvin degrees

* To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use the following formula: $C = (5/9)(F - 32)$. To obtain Kelvin (K) readings, use: $K = (5/9)(F - 32) + 273.15$.

CONDITION SURVEY, LAGUNA ARMY AIRFIELD
YUMA PROVING GROUND, ARIZONA

Purpose

1. The purpose of this report is to present the results of an inspection performed at Laguna Army Airfield (LAAF), Yuma Proving Ground, Arizona, during December 1972. The inspection was limited to visual observations, and no tests were conducted on any of the pavement facilities. A layout of the airfield is shown in plate 1.

Pertinent Background Data

Location and topography

2. LAAF is located on Yuma Proving Ground, Arizona, which is about 25 miles* north of Yuma, Arizona, in the southwestern Arizona desert. A vicinity map is shown in plate 1. Mountain ranges in the vicinity vary in size from low-lying hills to hills rising over 1600 ft above mean sea level, are from 1/8 to about 16 miles in width, and are from 8 to 36 miles in length. The ranges consist of blocky buttes, spires, and steep-sided mesas with local relief of several hundred feet. The plains connecting these ranges are cut by broad desert washes varying from 3 to 20 ft in depth. In general, the area is composed primarily of alluvial plains and ranges of hills and mountains. The valleys of two major stream systems, the Colorado River and the Gila River, transverse to the west and to the south of the area, respectively. Only the Colorado has a large continuous annual flow of water. Exposures of bedrock are limited to the ranges proper and to the pediments at their margins; however, most of the area is mantled by gravels, sands, and silts (recent alluviums).

Drainage and water table

3. The area surrounding the Yuma Proving Ground is composed of

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* A table of factors for converting British units of measurement to metric units is presented on page vii.

alluvial fans and dry desert washes emanating from the numerous hills and low mountain ranges. The greatest percentage of the land surface is not conducive to absorbing rainfall to reduce runoff; however, the rainfall is very light in this desert area, and drainage facilities are not considered necessary. The water table was not encountered in any of the borings or test pits of 1958 (described in the report referenced in paragraph 6b).

Climatic conditions

4. The climatic characteristics of the area reflect a mean annual temperature of 73 F and a mean annual precipitation of approximately 3.03 in. The temperature ranged from a high of 117 F to a low of 14 F between the years 1931 and 1952. A tabulation of temperature and precipitation data is presented in table 1. The amounts of departure from normal for the 1971 temperatures and precipitation were determined using a period of record of 14 yr.

General description of airfield

5. In December 1972, the airfield facilities consisted of a N-S (17-35) runway, which was approximately 5630 ft long and 150 ft wide; an E-W (24-06) runway, which was 6000 ft long and 150 ft wide; connecting taxiways; a parking apron; a hangar apron; a warm-up apron; and a washrack.

Previous reports

6. Previous reports describing the airfield facilities at LAAF are listed below. Pertinent data were extracted from them for use in this condition survey report.

a. U. S. Army Engineer Waterways Experiment Station, CE, "Army Airfield Pavement Evaluation, Laguna Army Airfield, Yuma Test Station, Yuma, Arizona," November 1959, Vicksburg, Mississippi.

b. U. S. Army Engineer District, Los Angeles, CE, "Materials Investigation Report, Laguna Airfield, Yuma Test Station, Yuma, Arizona," January 1958, Los Angeles, California.

c. _____, "Materials Investigation Report, Laguna Field, Yuma Proving Ground, Yuma, Arizona," July 1967, Los Angeles, California.

7. No previous condition surveys have been conducted at LAAF.

History of Airfield Pavements

Construction history

8. 1942-1943 construction. The original construction was accomplished during 1942-1943 by Third Army troops, who used the location as a staging area during World War II. Construction consisted of 6 in. of portland cement concrete (PCC) on the hardstand areas and 1-1/2 to 3 in. of bituminous surface course (field mix) over 6 to 10 in. of clayey sandy gravel base course on the runways and taxiways.

9. 1958 construction. In 1958, the runway and a portion of the taxiway were strengthened with an overlay consisting of 3 in. of asphaltic concrete (AC) and 6 in. of stabilized aggregate base course. The N-S runway was extended about 500 ft at its south end. This construction was of 3-in. AC over 8 in. of stabilized aggregate base course over 9 in. of select imported subbase. A PCC warm-up pad, which was 100 ft long and 200 ft wide, was constructed at the south end of the N-S taxiway, and a 70- by 100-ft extension was added to the parking apron. All pavements were designed to support a 50,000-lb load on twin wheels spaced 37 in. center to center with each tire having a 267-sq-in. contact area. This design was based on use by C-119H aircraft.

10. 1967 construction. In 1967, the E-W runway and taxiway 4 were reconstructed. This construction consisted of 1-1/2 in. of AC, 6 in. of stabilized aggregate base course, and 4 in. of subbase. This construction was considered to be the first step of a stage construction project, which was planned so that the pavement ultimately would be capable of supporting a 67,000-lb gear load on a single-tandem assembly in a tricycle gear configuration.

11. 1970 construction. In 1970, the first 500 ft of the north end of the N-S runway (feature R7B) was strengthened with a 1-1/2-in. AC overlay. A hangar apron and washrack were constructed of 9-in. PCC.

12. 1971 construction. In 1971, approximately 4610 ft of the N-S runway (feature R5C), taxiway 1 (feature T1B), the south end of the N-S taxiway (feature T3B), taxiway 2 (feature T4B), taxiway 3 (feature T5B), and the parking apron (feature A1B) were overlaid with 1-1/2 in. of AC.

The NW-SE taxiway (feature T7B) was overlaid with 4 in. of AC.

13. All construction except the original construction (1942-1943) was under the supervision of the U. S. Army Engineer District, Los Angeles. Details of the construction history are presented in table 2. A layout of the airfield and a pavement plan indicating the type of pavement on each facility are shown in plate 1. Pavement thicknesses, descriptions, and other details are presented in table 3.

Traffic history

14. Detailed traffic records were not available. The 1959 evaluation report (see paragraph 6a) indicates that approximately 650 cycles* of traffic by all types of aircraft occurred during the period May 1957-30 June 1958. (Types and loads of aircraft were not indicated.) From September 1958-January 1959, 869 cycles of traffic with gross weights less than 9,000 lb and 460 cycles with gross weights greater than 9,000 lb were applied. The aircraft considered to be in the weight class of less than 9,000 lb were light Army-type aircraft; the aircraft classed heavier than 9,000 lb were C-47's, C-131's, C-119's, and C-130's. The C-119 and C-130 aircraft applied the majority of the cycles in this group. During 1969, airfield traffic consisted of 3,698 operations of fixed-wing aircraft and 25,040 operations of rotary-wing aircraft. During 1970, 6,744 operations of fixed-wing aircraft and 23,209 operations of rotary-wing aircraft were applied. During 1971, 7,227 operations of fixed-wing aircraft and 29,084 operations of rotary-wing aircraft were applied. From January 1972-November 1972 traffic consisted of 3,776 operations of fixed-wing aircraft and 6,947 operations of rotary-wing aircraft. Records for the period 1969-1972 did not indicate the types of aircraft or gross loads; however, it was reported that the airfield in the past had received approximately six cycles per week of DC-3 aircraft traffic, two cycles per week of C-130 traffic, and one cycle per month of C-118, Jet Star, and Lear Jet traffic. The airfield operations personnel indicated that the N-S runway needs to be extended 500 ft in order to accommodate heavier aircraft.

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* A cycle of traffic is one takeoff and one landing.

Conditions of Pavement Surfaces

15. A visual inspection of the pavements during December 1972 indicated that the pavement conditions ranged from poor to excellent. The N-S runway was in good condition, with the exception of the first 500 ft on the north end (feature R7B), which was considered to be in only fair condition. The runway interior (feature R5C) contained some surface defects, such as openings at the longitudinal construction joints (photo 1) and minor reflection cracking (photo 2). The E-W runway was in only fair condition (photo 3). This rating was based on the thinness of the pavement (1-1/2-in. AC), the damage caused by aircraft turning around on the runway, and the poor bond in some locations between the wearing course and the binder course. All taxiways were in good condition, with the exception of the north end of the N-S taxiway (feature T2B), which was in poor condition. This pavement feature is the only portion of the original construction that has not been overlaid. The comparison between the overlaid pavements of this facility (such as feature T3B, which was overlaid in 1971) and feature T2B (see photos 4 and 5) should be noted. The parking apron was in good condition. The parking apron extension was in a poor to failed condition, since 75 percent of the slabs contained a major defect (table 4*). The warm-up apron was in only fair condition, since approximately 21 percent of the slabs contained a major defect. The hangar apron had one slab with a major defect, so this feature was rated excellent. The washrack was in excellent condition, with no defects noted.

Maintenance

16. Maintenance has consisted of patching small failed areas in the E-W runway and the overlays placed on the N-S runway and taxiways.

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* Table 4 shows a quantitative breakdown of the various types of defects and a condition rating for each feature inspected in detail. The procedures used for determining the condition rating of a pavement are given in Appendix III of Department of the Army Technical Manual TM 5-827-3, "Rigid Airfield Pavement Evaluation," dated September 1965.

The cost of overlays placed on the N-S runway and the taxiways was $46,200. The failed areas in the E-W runway were caused by short-radius turns by the C-130 and P-2 aircraft.

Evaluation

17. The latest evaluation report for this airfield was prepared in 1967 (see paragraph 6c). Because the overlays have strengthened some of the pavements and some changes in gear configurations and methods of evaluation have been made since that time, new evaluation tables (tables 5 and 6) have been prepared. The physical properties of the materials as determined in previous evaluations were used for this evaluation, with engineering judgment applied to specific pavement areas where performance has indicated that the load-carrying capacity should be modified from that obtained using the strength properties assigned in the physical property data.

18. The load-carrying capacities of the pavements at LAAF are presented in table 5. As is noted in this table, the basic field evaluation for the primary pavements is controlled by the carrying capacity of the north end of the N-S taxiway (feature T2B). The surface condition of this feature was poor. Occasional use of the pavement facilities by aircraft having gross weights greater than those allowable under the basic evaluation may be necessary. Table 6 shows the allowable loading of such aircraft operating at frequencies of one cycle per day, one cycle per week, and one cycle per month. The evaluation presented in table 6 applies only to the ability of the pavement to withstand a load. It is beyond the scope of this evaluation to determine the capability of the airfield to handle aircraft from the standpoint of the length of runway required, etc.

Conclusions

19. The following statements summarize the findings of this investigation:

a. The N-S runway was in good condition, with the exception of the first 500 ft of the north end, which was considered to be in only fair condition.

b. The E-W runway was in only fair condition.

c. The taxiways were in good condition, with the exception of the north end of the N-S taxiway (feature T2B), which was in poor condition.

d. Feature T2B, the north end of the N-S taxiway, should be overlaid to upgrade its condition to the load-carrying capacity of the other facilities at the airfield.

Table 1

Temperature and Precipitation Data

Month	1971 Average Temperature, F	Departure from Normal, F	1971 Precipitation, in.	Departure from Normal, in.
January	54.4	0.8	Trace*	-0.39
February	59.1	1.6	0.07	-0.29
March	65.7	2.2	0.00	-0.24
April	68.3	-3.0	0.63	0.54
May	73.9	-5.0	0.00	-0.01
June	85.4	-1.3	0.00	-0.01
July	93.8	0.5	Trace	-0.23
August	91.7	-0.2	0.22	-0.28
September	86.6	-0.2	1.41	1.03
October	70.0	-4.9	0.01	-0.37
November	60.6	-1.4	0.00	-0.12
December	51.6	-3.5	0.10	-0.22
Annual	71.8	-1.2	2.44	-0.59

Note: Highest temperature in 1971 was 114 F on September 12; lowest temperature in 1971 was 23 F on January 8.

* An amount too small to measure.

Table 2

Airfield Construction History

Pavement Facility	Feature No.	Dimensions Length ft	Dimensions Width ft	Pavement Thickness in.	Pavement Type	Construction Year(s)	Construction Agency
N-S runway							
Original construction	R5C, R7B	5110	150	1-1/2 to 3	BFM	1942-43	TAT
Overlay	R5C	4610	150	3	AC	1958	CE
South extension	R2B, R3B, R4B	520	150	3	AC	1958	CE
Pad at north end	R6C	75	120	11	PCC	1958	CE
Overlay	R7B	500	150	1-1/2	AC	1970	CE
Overlay	R5C	4610	150	1-1/2	AC	1971	CE
E-W runway							
Original construction	R8B, R9C, R10B	6000±	150	1-1/2 to 3	BFM	1942-43	TAT
Reconstruction	R8B, R9C, R10B	6000±	150	1-1/2	AC	1971	CE
Taxiway 1							
Original construction	T1B	450	80	1-1/2 to 3	BFM	1942-43	TAT
Overlay	T1B	450	80	1-1/2	AC	1971	CE
N-S taxiway							
Original construction	T2B, T3B	4800±	50	1-1/2 to 3	BFM	1942-43	TAT
Overlay	T3B	1200	50	3	AC	1958	CE
Overlay	T3B	1200	50	1-1/2	AC	1971	CE
Taxiway 2							
Original construction	T4B	400	50	1-1/2 to 3	BFM	1942-43	TAT
Overlay	T4B	400	50	3	AC	1958	CE
Overlay	T4B	400	50	1-1/2	AC	1971	CE
Taxiway 3							
Original construction	T5B	400	80	1-1/2 to 3	BFM	1942-43	TAT
Overlay	T5B	340	80	3	AC	1958	CE
Overlay	T5B	340	80	1-1/2	AC	1971	CE
Taxiway 4							
Original construction	T6B	1400±	75±	1-1/2 to 3	BFM	1942-43	TAT
Reconstruction	T6B	1400±	75±	1-1/2	AC	1967	CE
NW-SE taxiway							
Original construction	T7B	Varies	50	1-1/2 to 3	BFM	1942-43	TAT
Overlay	T7B	Varies	50	4	AC	1971	CE
Parking apron							
Original construction	A1B	300	110	1-1/2 to 3	BFM	1942-43	TAT
Overlay	A1B	300	110	3	AC	1958	CE
Overlay	A1B	300	110	1-1/2	AC	1971	CE
Parking apron extension	A2B	100	70	11	PCC	1958	CE
Warm-up apron	A5B	100	200	11	PCC	1958	CE
Hangar apron	A3B	360±	200±	9	PCC	1970	CE
Washrack	A4B	120	100	9	PCC	1970	CE

Note: CE denotes Corps of Engineers; TAT denotes Third Army Troops; BFM denotes bituminous field mix.

Table 3

SUMMARY OF PHYSICAL PROPERTY DATA

FACILITY Laguna AAF, Arizona				OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CONDITION OF AREA CONSIDERED
FACILITY NUMBER AND IDENTIFICATION		LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
R2B	N-S runway, sta 0+00 to 0+82	82	150				3	Asphaltic concrete		8 9	Stabilized aggregate Select subbase	80 70	Clayey silty sand	25	Good
R3B	N-S runway, sta 0+82 to 2+50	168	150				3	Asphaltic concrete		6 1-1/2 to 3 7	Stabilized aggregate Bituminous field mix Clayey sandy gravel	80 80 30	Clayey silty sand	15	Good
R4B	N-S runway, sta 2+50 to 5+20	270	150				3	Asphaltic concrete		8 9	Stabilized aggregate Select subbase	80 70	Clayey silty sand	25	Good
R5C	N-S runway, sta 5+20 to 51+05	4610	150	1-1/2	Asphaltic concrete		3	Asphaltic concrete		6 1-1/2 to 3 7	Stabilized aggregate Bituminous field mix Clayey sandy gravel	80 80 30	Clayey silty sand	15	Good
R6C	N-S runway, sta 50+30 to 51+05	75	120				11	Portland cement concrete	625	1-1/2 to 3 6	Bituminous field mix Clayey sandy gravel		Clayey silty sand	300	Good
R7B	N-S runway	500	150				1-1/2	Asphaltic concrete		1-1/2 to 3 7	Bituminous field mix Clayey sandy gravel	80 50	Clayey silty sand	15	Fair
R8B ~~R9C~~ R10B	E-W runway	6000	150				1-1/2	Asphaltic concrete		6 4	Stabilized aggregate Subbase	80 50	Clayey silty sand	15	Fair
T1B	Taxiway 1	450	80				1-1/2	Asphaltic concrete		1-1/2 to 3 7	Bituminous field mix Clayey sandy gravel	80 50	Clayey silty sand	15	Good
T2B	N-S ~~taxiway~~	3600±	50				3	Bituminous field mix		6	Clayey sandy gravel	39	Clayey silty sand	21	Poor
T3B T4B T5B A1B	N-S taxiway Taxiway 2 Taxiway 3 Parking apron	1200 400 340 300	50 50 80 110	1-1/2	Asphaltic concrete		3	Asphaltic concrete		6 1-1/2 to 3 7	Stabilized aggregate Bituminous field mix Clayey sandy gravel	80 80 30	Clayey silty sand	15	Good
T6B	Taxiway 4	1400±	75±				1-1/2	Asphaltic concrete		6 4	Stabilized aggregate Subbase	80 50	Clayey silty sand	15	Good
T7B	NW-SE taxiway	Varies	50				4	Asphaltic concrete		1-1/2 to 3 7	Bituminous field mix Clayey sandy gravel	80 30	Clayey silty sand	15	Good
A2B	Parking apron extension	100	70				11	Portland cement concrete	625				Clayey silty sand	300	Poor to failed
A3B A4B	Hangar apron Washrack	360± 120	200± 100				9	Portland cement concrete	600				Clayey silty sand	300	Excellent
A5B	Warm-up apron	100	200				11	Portland cement concrete	625	1-1/2 to 3 6	Bituminous field mix Clayey sandy gravel		Clayey silty sand	300	Fair

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Table 4

DATE: December 1972

SUMMARY OF DATA - RIGID PAVEMENT CONDITION SURVEY

AIRFIELD: Laguna Army Airfield

FEATURE NO.	FEATURE DESIGNATION	SLAB SIZE FT	APPROX NO. OF SLABS	PAVE. THICK. IN.	NO. OF SLABS CONTAINING INDICATED DEFECTS																	% OF SLABS NO DEFECTS	% OF SLABS NO MAJOR DEFECTS	CONDITION
					I	—	\	Δ	✳	K	~	S	J	⌟	J	⊕	M	P	O	C	D			
A2B	Apron extension	Varies	32	11	3	19	1		3		22		1		1		3					6.2	25.0	Poor to failed
A3B	Hangar apron	20 by 20	24	9	1										3							98.3	99.0	Excellent
A4B	Washrack	20 by 20	30	9																		100.0	100.0	Excellent
A5B	Warm-up apron	Varies	47	11	7	4					7			2								68.1	78.7	Fair

REMARKS:

LEGEND:

I	LONGITUDINAL CRACK	~	SHRINKAGE CRACK	M	MAP CRACKING
—	TRANSVERSE CRACK	S	SCALING	P	PUMPING JOINT
\	DIAGONAL CRACK	J	SPALL ON TRANSVERSE JOINT	O	POP-OUT
Δ	CORNER BREAK	⌟	SPALL ON LONGITUDINAL JOINT	C	UNCONTROLLED CONTRACTION CRACK
✳	SHATTERED SLAB	J	CORNER SPALL	D	"D" CRACKING
K	KEYED JOINT FAILURE	⊕	SETTLEMENT		

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JUN 1972

Table 5

Summary of Basic Field Evaluation, December 1972

Pavement Facility	Feature No.	Allowable Gross Aircraft Loadings, lb, for Normal Period Operation	
		Single-Wheel Gear	Twin-Wheel Gear
	Primary Pavements		
N-S runway			
First 520 ft, south end	R2B, R3B, R4B	70,000+	50,000+
First 500 ft, north end	R7B	62,000	50,000+
Interior	R5C, R6C	70,000+	50,000+
Taxiway 1	T1B	62,000	50,000+
North end of N-S taxiway*	T2B	35,000	45,000
South end of N-S taxiway	T3B	70,000+	50,000+
Taxiway 3	T5B	70,000+	50,000+
Hangar apron	A3B	60,000+	50,000+
	Secondary Pavements		
E-W runway			
First 500 ft, each end	R8B, R10B	70,000+	50,000+
Interior	R9C	70,000+	50,000+
Taxiways 2 and 4	T4B, T6B	70,000+	50,000+
NW-SE taxiway	T7B	65,000	50,000+
Parking apron, parking apron extension, wash-rack, and warm-up apron	A1B, A2B, A4B, A5B	70,000+	50,000+

* Basic field evaluation.

Table 6

Summary of Pavement Evaluation for Overload Aircraft

Overload Aircraft			Allowable Gross Aircraft Load, lb		
Type Aircraft	Weight, lb Empty	Weight, lb Gross	One Cycle per Day	One Cycle per Week	One Cycle per Month
C-123	30,000	60,000	55,000		
C-131	30,700	60,000			
C-119	41,000	77,000	60,000		
C-54	39,000	82,500	60,000		
C-130	69,837	155,000	105,000	125,000	
C-124	100,700	216,000	172,000		
C-141	134,000	316,600	177,800	213,300	311,100
C-5A	318,200	770,000	488,900	584,400	744,400

Note: Basic field evaluation was 35,000-lb gross aircraft loading on single-wheel gear and 45,000-lb gross aircraft loading on twin-wheel gear.

Aircraft can operate at maximum gross load.

55,000 Aircraft can operate at indicated gross load.

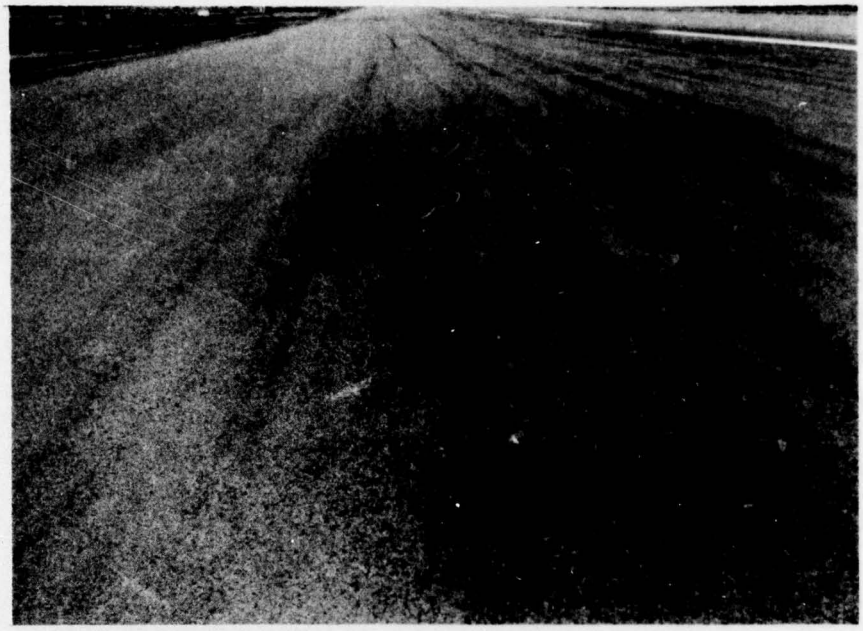


Photo 1. Cracking in longitudinal construction joint on N-S runway

Photo 2. Reflection cracking in surface on N-S runway

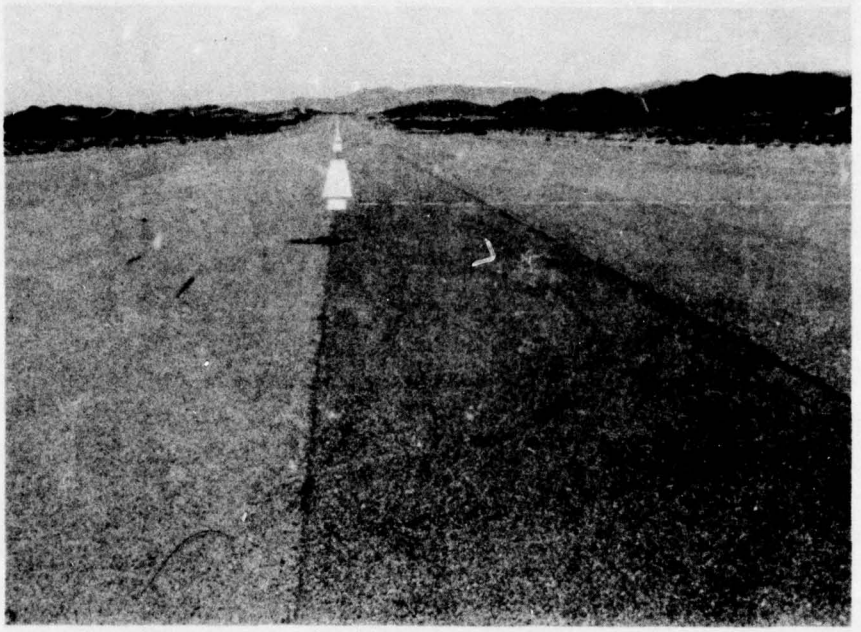


Photo 3. General view of E-W runway

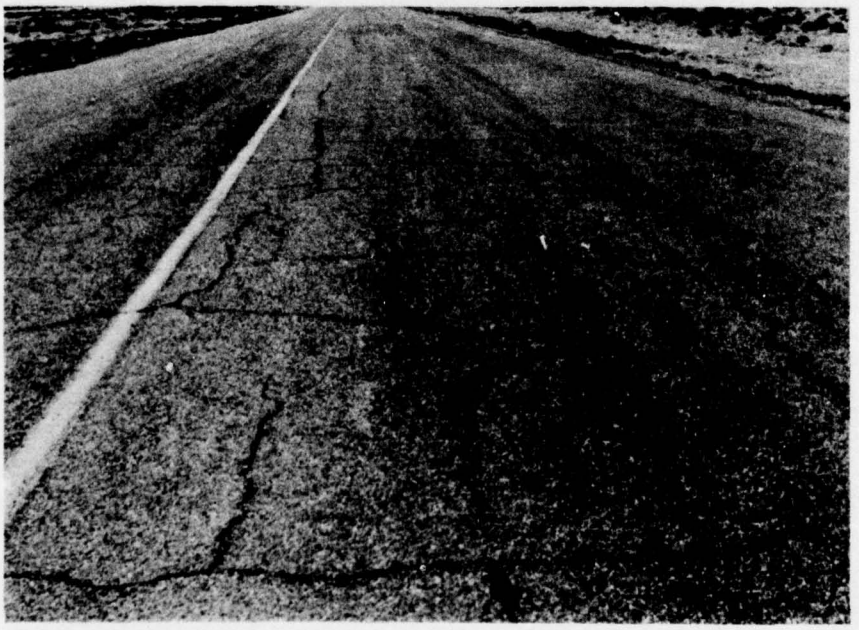
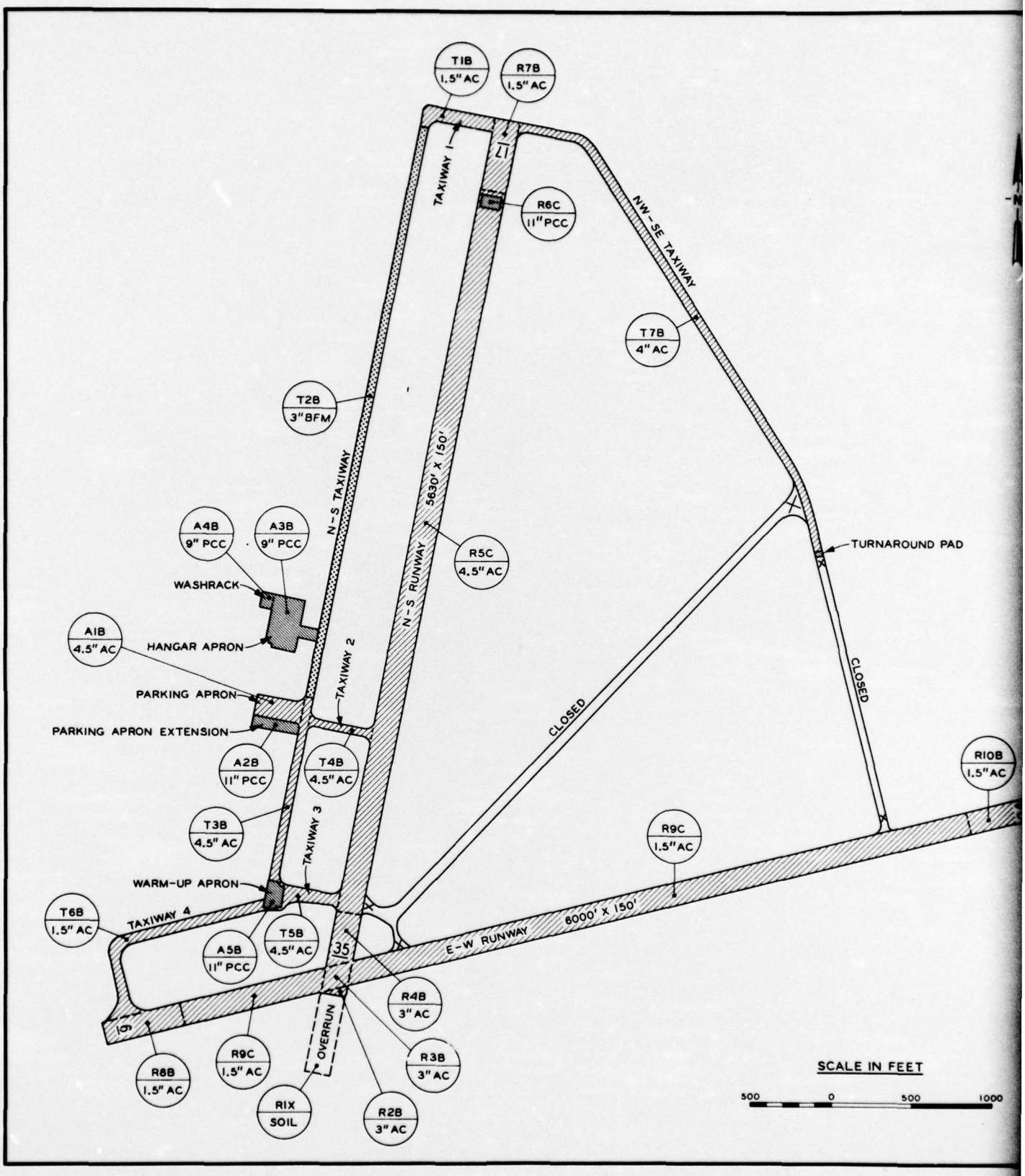


Photo 4. Surface condition of N-S taxiway (feature T2B). Area has not been overlaid

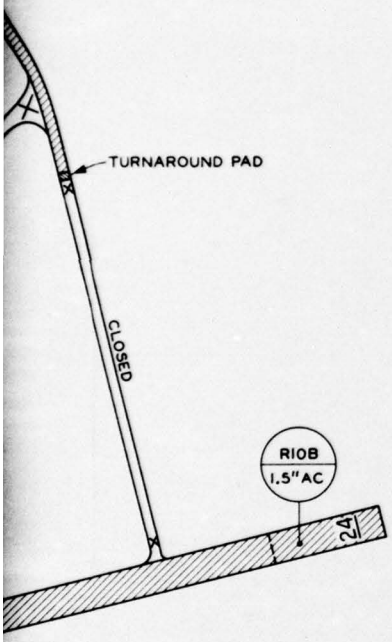
Photo 5. Surface condition of N-S taxiway (feature T3B). Overlay was placed in 1971


T1B
1.5" AC
R7B
1.5" AC
TAXIWAY 1
17
R6C
11" PCC
NW-SE TAXIWAY
T7B
4" AC
T2B
3" BFM
N-S TAXIWAY
5630' X 150'
N-S RUNWAY
A4B
9" PCC
A3B
9" PCC
WASHRACK
R5C
4.5" AC
TURNAROUND PAD
A1B
4.5" AC
HANGAR APRON
PARKING APRON
TAXIWAY 2
PARKING APRON EXTENSION
CLOSED
CLOSED
A2B
11" PCC
T4B
4.5" AC
R10B
1.5" AC
T3B
4.5" AC
TAXIWAY 3
R9C
1.5" AC
WARM-UP APRON
T6B
1.5" AC
TAXIWAY 4
E-W RUNWAY
6000' X 150'
A5B
11" PCC
T5B
4.5" AC
35
R4B
3" AC
OVERRUN
R3B
3" AC
R8B
1.5" AC
R9C
1.5" AC
R1X
SOIL
R2B
3" AC
SCALE IN FEET
500
0
500
1000

VICINITY MAP

SCALE IN MILES

3 0 3 6



LEGEND

- ASPHALTIC CONCRETE (AC)
- PORTLAND CEMENT CONCRETE (PCC)
- BITUMINOUS FIELD MIX (BFM)

R2B ← FEATURE DESIGNATION (SEE NOTE 1)
3" AC ← SURFACE PAVEMENT THICKNESS AND TYPE

TYPE OF FEATURE
- R - RUNWAY
- T - TAXIWAY
- A - APRON

TYPE TRAFFIC AREA
- B - RUNWAY ENDS, TAXIWAYS, AND APRONS
- C - RUNWAY INTERIOR
- X - NO TRAFFIC

NOTE: FEATURE DESIGNATION DENOTES TYPE OF FEATURE, NUMBER OF FEATURE FOR GIVEN TYPE, AND TYPE OF TRAFFIC AREA.

SCALE IN FEET

0 500 1000

LAGUNA AAF
YUMA PROVING GROUND
YUMA ARIZONA

AIRFIELD LAYOUT AND PAVEMENT PLAN

PLATE 1